

	Administrative Regulation		Policy #	06-04.06
	Wildfire Smoke Exposure		Effective Date:	June 27, 2022
			Revision Date:	N/A
			Owner:	Risk Management

Purpose:

To protect employees from exposure to wildfire smoke and to ensure compliance with Oregon Safety Health Administration (OSHA) regulations.

Scope:

Applies to employees who work outdoors during a wildfire for a cumulative total of more than one hour per 8-hour shift or work in a building or vehicle where the essential activity involves regular opening and closing of windows and or doors for a cumulative total of more than one hour per 8-hour shift.

Does not apply when employees are engaged in emergency operations that are directly involved in the protection of life or property, or the restoration of essential services, such as evacuation, rescue, medical, structural firefighting, law enforcement, utilities, and communications.

Policy:

It is the policy of the City of Springfield to comply with OAR 437-002-1081 Protection from Wildfire Smoke. Smoke from wildfires contains gases, chemicals, and fine particles that can have adverse health effects. The most significant hazard comes from breathing fine particles in the air, which can cause coughing, wheezing, difficulty breathing, and impact lung function. Fine particulate matter of the 2.5 micrometer diameter or smaller size (PM 2.5) are considered to be the most harmful since these particles can reach deep into the lungs. This may worsen pre-existing symptoms caused by respiratory illness like COVID 19, Asthma, COPD or other heart and lung-related illnesses.

Procedure:

1. Responsibilities

1.1. Risk Manager

1.1.1. Maintain and update this written Wildfire Smoke Exposure Management Administrative Regulation.

1.2. *Managers and Supervisors* of employees who perform work activities outdoors during or after wildfires when smoke is present shall:

- 1.2.1. Maintain Department-specific Standard Operating Procedure (SOPs) applying the principles in this administrative regulation.
- 1.2.2. Ensure that their employees are made aware of the Wildfire Smoke Exposure Management Program.
- 1.2.3. Ensure that their employees have access to respiratory protection supplies for voluntary use.
- 1.2.4. Ensure employees who elect to voluntarily use respirators have read this administrative regulation.
- 1.2.5. To the extent feasible, encourage and allow employees to work in enclosed structures or vehicles with filtered air.
- 1.2.6. Implement the following control systems for employees that must work outdoors during a wildfire:
 - 1.2.6.1. Changing procedures such as moving workers to a place with a lower current Air Quality Index (AQI),
 - 1.2.6.2. Reducing work time in areas with unfiltered air,
 - 1.2.6.3. Increasing rest time and frequency, and providing a rest area with filtered air, and
 - 1.2.6.4. Reducing the physical intensity of the work to help lower the breathing and heart rates.
- 1.2.7. Notify their department director if their employees inform them that the air quality is getting worse or if they are suffering from any symptoms due to the air quality.

1.3. *Employees* working outdoors during wildfire conditions shall:

- 1.3.1. Review, understand, and follow this administrative regulation.
- 1.3.2. Inform their supervisor if the air quality is getting worse.
- 1.3.3. Inform their supervisor if they are suffering from any symptoms.
- 1.3.4. Seek medical treatment if needed.

2. Wildfire Smoke Exposure Control Plan

2.1. *Exposure Monitoring*

- 2.1.1. Before, and periodically during each shift, leadership will use one of the following sources to determine employees' potential exposure to harmful smoke

particulates while working outdoors during a wildfire Monitoring AQI information available on:

2.1.1.1. via the U.S. Environmental Protection Agency (EPA) EPA's Air Now Web Site <https://oraqi.deq.state.or.us/home/map> ,

2.1.1.2. The Oregon State DEQ Air Quality webpage <https://Airnow.gov>, or

2.1.1.3. The department may elect to test PM2.5 levels using a direct reading particulate monitor instrument if they comply with the following:

2.1.1.3.1. The monitor does not underestimate employee exposures to wildfire smoke; or may underestimate wildfire smoke exposures, but the department has obtained information on the possible error of the monitor from the manufacturer or other published literature and has accounted for the error of the monitor when determining exposures to PM2.5 to ensure that employee exposure levels are not underestimated.

2.1.1.3.2. The monitor shall be designed and manufactured to measure the concentration of airborne particle sizes ranging from an aerodynamic diameter of 0.1 micrometers up to and including 2.5 micrometers. The employer may use a monitor that measures a particle size range beyond these limits, if the employer treats the results at the PM2.5 levels.

2.1.1.3.3. The employer shall ensure that the monitor it uses is calibrated, maintained, and used in accordance with the manufacturer's instructions for accurately measuring PM2.5 concentrations.

2.1.1.3.4. The City will use the following table to convert PM2.5 readings to AQI Category.

PM2.5 in Micrograms per Cubic Meter (µg/m ³)	Air Quality Index (AQI) Categories for PM2.5	Level of Health Concern
0 to 12.0	0 to 50	GOOD
12.1 to 35.4	51 to 100	MODERATE
35.5 to 55.4	101 to 150	UNHEALTHY FOR SENSITIVE GROUPS
55.5 to 150.4	151 to 200	UNHEALTHY

150.5 to 250.4	201 to 300	VERY UNHEALTHY
250.5 to 500.4	301 to 500	HAZARDOUS

2.2. *Communication of Air Quality and Protective Measures*

- 2.2.1. Leadership is responsible for informing employees about air quality, protective measures, and operations changes.
- 2.2.2. Employees should notify their supervisors of worsening air quality and any adverse symptoms they may be experiencing due to smoke exposure.

3. Exposure Control Methods

3.1. *Engineering Controls*

- 3.1.1. The City will control exposure to wildfire smoke primarily through engineering controls, including:
 - 3.1.1.1. Locating personnel in enclosed buildings, structures, or vehicles where air is adequately filtered when AQI for PM_{2.5} is above the Action Level of 101.
 - 3.1.1.2. Keeping windows closed and only opening doors for entrance or exiting a building or vehicle.

3.2. *Administrative Controls*

- 3.2.1. Whenever engineering controls are not feasible or do not reduce employee exposure to less than an AQI of 101, the City will implement administrative controls, including:
 - 3.2.1.1. relocating workers to a location where the AQI is lower,
 - 3.2.1.2. changing work schedules,
 - 3.2.1.3. reducing work intensity
 - 3.2.1.4. providing rest periods, or
 - 3.2.1.5. cease operations.

3.3. *Personal Protective Equipment (PPE)*

- 3.3.1. Whenever engineering and administrative controls are not feasible or do not reduce employee exposure to less than an AQI of 101, the City will provide respiratory protection in the form of N95 respirators and recommend their use. The AQI for PM_{2.5} will determine whether respirator use is voluntary or required for employees.

- 3.3.2. AQI of <100 – Voluntary. N95 filtering facepiece respirators will be provided on employee request for voluntary use. Employees should review information regarding respirator use, care, and limitations before voluntarily wearing respirators under these conditions.
- 3.3.3. AQI of 101-499 – Voluntary but actively encouraged. N95 filtering facepiece respirators will be provided to employees working outdoors to wear on a voluntary basis. Employees must review information regarding respirator use, care, and limitations before voluntarily wearing respirators under these conditions.
- 3.3.4. AQI of >500 – Required for essential workers. All workers must comply with OSHA respiratory protection rules; meaning, the user must be:
 - 3.3.4.1. Medically cleared for tight-fitting respirator use;
 - 3.3.4.2. Trained on using a tight-fitting respirator; and
 - 3.3.4.3. Fit-Tested for the specific tight-fitting respirator they will be using.

3.4. Suspending Operations

- 3.4.1. In the unlikely event that AQI level is above 500, all nonessential outside activities must be stopped (except for authorized respirator users indicated above) and employees are to remain indoors with doors and windows closed.
- 3.4.2. Consideration for closing facilities will be made by the City Manager and communicated to employees.

4. Training

- 4.1. All affected employees and supervisors of affected employees must receive training on the following topics:
 - 4.1.1. The symptoms of wildfire smoke exposure,
 - 4.1.2. Potential acute and chronic health effects from wildfire smoke exposure,
 - 4.1.3. The right to report health issues related to wildfire smoke exposure,
 - 4.1.4. How to obtain current average and forecasted AQI for the work location,
 - 4.1.5. The importance, limitations and benefits of using a filtering facepiece respirator,
 - 4.1.6. Procedures to protect employees from wildfire smoke, including how to don, doff and wear respirators,
 - 4.1.7. Review of job tasks that would expose workers to wildfire smoke exposure,

- 4.1.8. Procedures to follow when employees report or exhibit related health symptoms,
 - 4.1.9. How to operate and interpret results from any PM2.5 monitoring device if used, and,
 - 4.1.10. How employees will receive communication from leadership on this topic.
- 4.2. Leadership will document those employees have received the training above.

Definitions

1. "*Air Quality Index (AQI)*" is the method used by the U.S. Environmental Protection Agency (U.S. EPA) to report air quality on a real-time basis. Current AQI is also referred to as the "NowCast," and represents data collected over time periods of varying length in order to reflect present conditions as accurately as possible. The AQI is divided into six categories shown in the table below.

Air Quality Index Levels of Health Concern	Numerical Value	Meaning
Good	0 - 50	Air quality is considered satisfactory, and air pollution poses little or no risk.
Moderate	51 - 100	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.
Unhealthy for Sensitive Groups	101 - 150	Members of sensitive groups may experience health effects. The general public is not likely to be affected.
Unhealthy	151 - 200	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.
Very Unhealthy	201 - 300	Health alert: everyone may experience more serious health effects.
Hazardous	> 300	Health warning of emergency conditions. The entire population is more likely to be affected.

2. "*Essential Personnel*" includes, but is not limited to: Police, Fire, DPW Operations, and Information Technology. Essential Personnel may be further defined as an employee who provides essential services for the continued operation of critical City functions, including preparations and responses to emergencies.

3. “*NIOSH*” is the National Institute for Occupational Safety and Health of the U.S. Centers for Disease Control and Prevention. NIOSH tests and approves respirators for use in the workplace.
4. “*PM2.5*” is solid particles and liquid droplets suspended in air, known as particulate matter, with a diameter of 2.5 micrometers or smaller. This makes up a part of the AQI and is the main health risk during a Wildfire event. See the table below.

PM2.5 in Micrograms per Cubic Meter (µg/m3)	Oregon Air Quality Advisory (DEQ)	<i>Air Quality Index (AQI)</i>
35.5µg/m3	101	101

5. “*Sensitive groups*” include people who may be more sensitive than others to the hazardous air pollutants in wildfire smoke. These include:
 - a. Pregnant women, children, and adults over 65,
 - b. People with lung disease such as asthma or chronic obstructive pulmonary disease (COPD), including bronchitis and emphysema, and those who smoke;
 - c. People with respiratory infections, such as pneumonia or bronchitis, or those with or recovering from COVID-19;
 - d. People with existing heart or circulatory problems, such as irregular heart beat, congestive heart failure, coronary artery disease, and those who have had a heart attack or stroke;
 - e. People with diabetes; and
 - f. People with medical or health conditions that could be aggravated by exposure to wildfire smoke.
6. “*Wildfire Smoke*” are emissions from fires in "wildlands" or in adjacent developed areas

Resources:

1. OAR 437-002-1081 - Protection from Wildfire Smoke Oregon
2. [DEQ Air Monitoring Page](#)
3. [EPA Air Monitoring Page](#)
4. [OSHA Wildfire Smoke Page](#)

CREATION (Original):

This administrative regulation is in effect as of the date of my signature. I authorize the Human Resource Director to modify the history and resources sections and header, footer, and numbering without my reauthorization. The administrative regulation remains in effect should these revisions occur.			
Approved By:	Nancy Newton, City Manager	Dates:	June 23, 2022
Author:	Tom Mugleston, Risk Manager		
Responsible Party:	Risk Management		
Replaces:	New regulation		

PERIODIC REVIEW:

Reviewer:		Date:	
Reviewer:		Date:	
Reviewer:		Date:	
Reviewer:		Date:	
Reviewer:		Date:	

REVISIONS:

Version #2:	Responsible Party:			
	Revised By:			
	Approved By:		Date:	
	Reason/Summary of Changes:			